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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/902,691

07/12/2001

Li Li

M4065.0159/P159-A

3130

24998

7590

03/17/2003

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EXAMINER

BROCK II, PAUL E

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 03/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/902,691

Applicant(s)

LI ET AL.

Examiner

Paul E Brock II

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 59,60,62,64,66-84 and 92-95 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 59,60,62,64,66-84 and 92-95 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 12
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

1. It has been brought to the attention of the examiner that the letter mailed on February 27, 2003 was filed in error. After the interview with Applicant on March 10, 2003, it has been determined that the amendment filed on January 15, 2003 is fully responsive. Therefore, this office action (paper number 12) is responsive to the amendment filed January 15, 2003, and the letter mailed on February 27, 2003 should be disregarded.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 66 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 66 is dependent from a cancelled base claim. For purposes of this office action, claim 66 will depend from claim 59.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 59 – 60, 68 – 84, 92 – 95 are rejected under 35 U.S.C. 102(b) as being anticipated by Irinoda (USPAT 5726499).

With regard to claim 59, Irinoda discloses in figure 2 and 6 – 9f an integrated circuit substrate. Irinoda discloses in figure 2 and 6 – 9f and column 16, lines 1 – 11 an oxide layer (503) formed over the substrate. Irinoda discloses in figure 2 and 6 – 9f a plurality of cylindrical contact holes formed in the oxide layer having reduced sidewall striations, thereby reducing critical dimension loss between the contact holes. It is noted that the remaining limitations in claim 59 following, and including, “said reduced striations resulting from the application of a first power level plasma...” are product-by-process limitations that do not patentably distinguish the claimed invention over the prior art.

With regard to claim 60, Irinoda discloses in figure 2 and 6 – 9f and column 15, line 59 wherein the substrate is a silicon-based substrate.

With regard to claim 92, Irinoda discloses in figure 2 and 6 – 9f an integrated circuit substrate. Irinoda discloses in figure 2 and 6 – 9f and column 16, lines 1 – 11 an oxide layer (503) formed over the substrate. Irinoda discloses in figure 2 and 6 – 9f a plurality of cylindrical contact holes formed in the oxide layer having reduced sidewall striations. Irinoda discloses in figure 2 and 6 – 9f wherein the substrate has a decreased critical dimension loss compared to the critical dimension loss of a substrate formed by other processes. It is noted that the remaining limitations in claim 92 referring to power level plasmas are product-by-process limitations that do not patentably distinguish the claimed invention over the prior art.

With regard to claims 68 – 84, and 93 – 95 Irinoda reads on claimed limitations. It is noted that the limitations in claims 68 – 84, and 93 are product-by-process claims that do not patentably distinguish the claimed invention over the prior art.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 62, 64 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irinoda as applied to claim 59 above, and further in view of Summerfelt et al. (USPAT 5612574, Summerfelt).

It is not clear if Irinoda teaches the substrate is a gallium arsenide substrate, a germanium substrate, or a DRAM substrate. Summerfelt discloses in figure 1 and column 3, lines 3 – 11 wherein the substrate is a germanium substrate. Summerfelt discloses in figure 1 and column 3, lines 3 – 11 wherein the substrate is a gallium arsenide substrate. Summerfelt discloses in figure 1 and column 2, lines 3 – 8 wherein the substrate is a DRAM substrate. It would have been obvious to use the substrates of Summerfelt in the device of Irinoda in order to use the most efficient and appropriate substrate for the intended application of the device.

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8. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irinoda as applied to claim above, and further in view of Foote et al. (USPAT 5710067, Foote).

It is not clear if Irinoda discloses an antireflective coating. Foote discloses in column 1, lines 21 – 48 wherein a substrate has an antireflective coating thereon. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the antireflective coating of Foote in the method of Irinoda in order to exhibit the requisite optical parameters to suppress multiple interference effects caused by the interference of light rays propagating in the same direction due to multiple reflections in the photoresist film as stated by Foote in column 1, lines 21 – 48.

Response to Arguments

9. Applicant's arguments with respect to claims 59, 60, 62, 64, 66 – 84, and 92 – 95 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II
March 10, 2003



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800